

REMARKS

By this amendment, applicants have amended the specification to insert appropriate headings therein. Claim 1 has also been amended to clarify that at least one of the several layers of SMC containing UD fibres has a different axial alignment from another layer. See, e.g., the paragraph bridging pages 2 and 3 of applicants' specification and, by way of example only, Figure 5. Applicants have added claims 27 - 43 to further define the present invention.

Claims 1 - 11 and 23 - 26, as well as claims 12 - 22, stand rejected under 35 USC 103(a) as being unpatentable over United States Patent No. 4,141,929 to Stoops et al. Applicants traverse this rejection and request reconsideration thereof.

The present invention relates to an SMC (sheet moulding compound) for producing fibre-reinforced components, and to a process for producing such an SMC. The SMC product of the present invention is made up of a plurality of layers or SMC mats. As shown, by way of example only in Figure 1, each layer or mat includes a resin matrix (2) which is fibre-reinforced with unidirectional fibres (UD fibres) (7) arranged in axial alignment and, optionally, with additional cut fibres (random fibres) (4) arranged in un-aligned manner in the resin matrix (2). As shown by way of example only in Figure 5, several layers of SMC or SMC mats are stacked with at least one layer having a different axial alignment from another layer. The Example shown in Figure 5 has the following alignment: 0°, 90°, +45°, -45°, 90°, 0°.

The Stoops et al patent discloses a thickened, dry, handable sheet molding composition that contains continuous axially aligned filaments in a layer of sheet molding compound which can be molded between compression dyes to produce articles of high mechanical strength. It discloses that the sheet molding material can contain continuous filaments which are axially aligned and cut filaments which

are disposed in random fashion in the interstices between the continuous filaments, all of the filaments being embedded in a resinous layer. The sheet molding composition can be cut into segments which just cover the mold surfaces of dies. The dies are heated and compressed together to form, e.g., a rod-like article.

The Stoops patent, however, does not disclose a multi-layer fibre-reinforced SMC or a process for producing the same in which at least one SMC layer has a different axial alignment direction from another layer, as presently claimed. Rather, the molded product appears to have continuous filaments aligned in a single direction, i.e., unidirectional fibres. In this regard, note the description at column 5, lines 30 - 32 of Stoops which indicates that "[t]he terms 'parallel', 'perpendicular' refer to the direction of the continuous filaments in the molded product."

Thus, while the present invention uses several layers of SMC containing UD fibres, at least one layer having a different axial alignment from another layer, i.e., a multi-axial alignment, it appears the product of Stoops et al has a single alignment direction for the continuous filaments. Thus, the Stoops et al patent does not disclose and would not have suggested the presently claimed invention.

Applicants submit newly added claims 27 - 43 are patentable over Stoops et al for the reasons noted above.

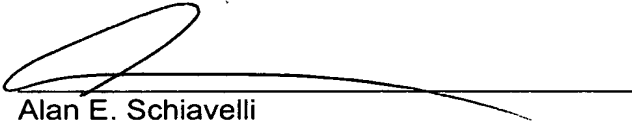
Applicants note the Examiner has cited a number of additional patents as being pertinent to applicants' disclosure. However, since these patents were not applied in rejecting claims formerly in the application, further discussion of these patents is deemed unnecessary.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all of the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 306.41247X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

A handwritten signature in black ink, appearing to read 'Alan E. Schiavelli', is written over a horizontal line.

Alan E. Schiavelli
Registration No. 32,087

AES/jla
(703) 312-6600